c. providing a growth-culture medium which promotes the growth of said microorganisms, including a nutrient substrate and/or a microorganism immobilization means,

d. providing a means for the directed mutual-exposure of said methane, said microorganisms, and said growth-culture medium, including a means for the capture and conveyance of said methane and a means for confining said microorganisms, said growth-culture medium, and said methane to a specified apparatus existing outside of the digestive tract of a ruminant animal,

e. mutually-exposing said methane, said microorganisms, and said growth-culture medium to cause said microorganisms to grow in said apparatus using said methane and said growth-culture medium,

whereby said methane contained within said ruminant animal exhalation is utilized for the sustained growth of said microorganisms in a specified apparatus,

whereby said methane, an environmentally-destructive material and previously unusable source of energy, is used to produce a useful end-product, and

whereby said microorganisms can be harvested and utilized following growth, adding economic incentive to a ruminant animal methane emissions reduction effort.

19. The method of claim 18 wherein said conveyance means includes any means for conveying said methane within said ruminant animal exhalation to said mutual-exposure means.

20. The process of claim 19 wherein said conveyance means conveys said ruminant animal exhalation and said methane from the nostrils, mouth, or nostrils and mouth of a ruminant animal to said means of mutual-exposure.

21. The process of claim 18 wherein said mutual-exposure means comprises any means whereby said ruminant animal exhalation and said methane therein is conveyed and exposed to said methane-utilizing microorganisms and said growth-culture medium in said microorganism growth apparatus, whereby said methane-utilizing microorganisms reproduce in or on said growth-culture medium in said apparatus using said methane for growth.

22. The process of claim 21, including providing a means for causing said methane, said methane-utilizing microorganisms, and said growth-culture medium to be mutually-exposed in a batch, semi-batch, or continuous manner.

23. The process of claim 18 wherein said growth-culture medium comprises any medium promoting the growth of said microorganisms, including any liquid, semi-liquid, gas, particulate, ceramic, foam, plastic, alginate gel, clay, nutrient, or other appropriate growth-culture medium.

24. The process of claim 18 wherein said microorganisms are either naturally-occurring or genetically-engineered.

25. The method of claim 24 wherein said microorganisms either have or have not been previously exposed in said mutual-exposure means.

26. The method of claim 18, wherein the type of methane-utilizing microorganisms to be used in the confined apparatus is determined by one or more factors selected from the group consisting of the amount of growth desired, methane availability, and nutrient availability.

27. The process of claim 18, including providing a means to periodically harvest the product of said microorganism growth, including microorganism biomass and any other products associated with said growth.